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Gary Dean Sasser

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EXAMINER

CONNELLY CUSHWA, MICHELLE R

ART UNIT

PAPER NUMBER

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/715,576	Applicant(s) SASSER ET AL.	
	Examiner MICHELLE R. CONNELLY CUSHWA	Art Unit 2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 May 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 8-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-25, 29-32 and 34 is/are rejected.
- 7) ☒ Claim(s) 26-28 and 33 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>5/22/07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

Applicant's Amendment filed May 4, 2007 has been fully considered and entered.

Information Disclosure Statement

The prior art documents submitted by applicant in the Information Disclosure Statement filed on May 22, 2007 have all been considered and made of record (note the attached copy of form PTO-1449).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5, 8-20, 22-25, 29-32 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yunker et al. (US 6,854,894 B1) in view of Chiu et al. (US 7.118.281 B2).

Regarding claims 1, 2, 18 and 29-31; Yunker et al. discloses an integrated optoelectronic module array (see Figures 3-5), comprising:

- a component structure (502) including a plurality of optoelectronic sub-modules (512, 514, 516), each of which comprise an optical transceiver module (see column 8, lines 24-26),
- the plurality of optical transceiver sub-modules (512, 514, 516) integrated into a single structure,

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- the component structure being integrally formed such that each optoelectronic sub-module shares at least one wall portion with an adjacent optoelectronic sub-module (see column 8, lines 37-39),
- an optional outer cage (see column 8, lines 51-53);
- wherein the outer cage (312) is affixed to a host board (308 in Figure 3);
- wherein each optical transceiver sub-module includes dual optical ports.

Yunker et al. does not disclose a latching mechanism.

Chiu et al. teaches a retention and release mechanism for holding a fiber optic module affixed to a module receptacle and for de-latching or unplugging the module from the receptacle (see column 13, lines 26-29). And, Chiu et al. teaches that the retention and release mechanism is particularly applicable to an SFP fiber optic module and an SFP cage assembly or module receptacle (see column 13, lines 29-31). The assembly disclosed by Yunker et al. is an SFP assembly (see column 1, lines 33-36; column 4, lines 60-65; and column 6, lines 49-52 of Yunker et al.)

Therefore, given the explicit suggestion of Chiu et al. to use the retention and release mechanism in an SFP assembly and the SFP assembly taught by Yunker et al., one of ordinary skill in the art would have found it obvious to incorporate the retention and release mechanism taught by Chiu et al. in the SFP assembly disclosed by Yunker et al. in order to retain and release the fiber optic modules from the receptacle/cage assembly of Yunker et al.

Regarding claim 3; the host board (308) is contained with the optical device disclosed by Yunker et al., and since the optical device includes an optical transceiver, an optical signal is at least routed to and from the optical device, and therefore, the device forms part of an optical router.

Regarding claim 4; an optical interface portion of the component structure extends from a first open end of the outer cage (312), and a plurality of printed circuit board card portions (the printed circuit board card portions are comprised of portions of the host board, which are integrally formed as a printed wire assembly, PWA) extends from a second open end of the outer cage.

Regarding claim 5; the optical interface portion includes at least one optical port (322 and 324 in Figure 3; 528, 530, 532, 534, 536, 538 in Figure 5) for each of the optoelectronic sub-modules.

Regarding claim 8; the outer cage provides EMI shielding for the sub-modules (see column 6, lines 52-56 and column 8, lines 51-53 of Yunker et al.).

Regarding claim 9; Yunker et al. discloses a housing (chassis, 504) that contains at least a portion of the component structure.

Regarding claim 10; the component structure is configured to minimize spacing between the optoelectronic sub-modules (see column 8, lines 44-49 of Yunker et al.).

Regarding claims 11 and 19; the proposed combination of Yunker et al. and Chiu et al. teaches all of the limitations of claim 11 as applied to claims 1-5, 8-10 and 18 above.

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Regarding claims 12 and 22; Yunker et al. does not explicitly state that four optical transceiver sub-modules are included in the component structure, however, Yunker et al. does teach that although the multi-transceiver assemblies are illustrated with specific numbers of transceivers (e.g. 3), it should be appreciated that multi-transceiver assemblies of any numbers are considered part of the invention (see column 14, lines 53-59). Therefore, one of ordinary skill in the art would have found it obvious to incorporate 4 transceiver sub-modules in the invention of Yunker et al., since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art (*St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8), and since Yunker et al. suggests that any number of transceiver sub-modules may be contemplated, for the purpose of increasing the amount of information that may be transmitted and/or received by the optical device.

Regarding claims 13 and 23; at least one optical fiber connector (ferrules: 529, 531, 533, 535, 537, 539 are part of the LC connectors) is selectively connected with at least one of the optical transceiver sub-modules, and a release sleeve (the ports, 528, 530, 532, 534, 536, 538) is slidably attached to the at least one fiber optical connector.

Regarding claim 14; the latching mechanism taught by Chiu et al. is at least partially attached to the component structure and includes:

- a rotatable bail (914; see Figures 14B and 14C and 16A-16I of Chiu et al.); and
- a pivot block (928) having a lock pin (910), the pivot block being pivotally attached to the rotatable bail, wherein the lock pin engages a

portion of the outer cage when the bail and the pivot block are positioned in a specified configuration to selectively secure the integrated optical transceiver array.

Regarding claim 15; Yunker et al. does not explicitly state that the outer cage is positioned between the first host board and a second host board, however one of ordinary skill in the art would have found it obvious to connect the cage between first and second host boards in order to expand the capacity of the optical device.

Regarding claim 16; Yunker et al. teaches that the optical device may include a plurality of integrated optical transceiver arrays (see Figures 7A and Figure 8).

Regarding claim 17; Yunker et al. teaches that two integrated optical transceiver arrays are positioned on opposite surface of a first host board (see Figures 3 and 7A). One of ordinary skill in the art would have found it obvious to incorporate the latching mechanism taught by Chiu et al. so that the optical transceiver arrays each engage the first host board to which they are connected for the purpose of securing the arrays with the latching assembly taught by Chiu et al.

Regarding claim 20; the optical transceiver sub-modules disclosed by Yunker et al. each include dual optical ports (ports: 528, 530, 532, 534, 536, 538).

Regarding claims 24 and 25; both Yunker et al. and Chiu et al. teach that the connectors are LC duplex connectors, and the sleeves are shaped to correspond to the LC connectors in the invention of Yunker et al.

Regarding claim 32; the proposed combination of Yunker et al. and Chiu et al. teaches all of the limitations of these claims as applied above. Optical fiber connectors

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(ferrules, 429, 431, 433, 435, 437, 439) are connected to the optical ports (528,530,532,534,536,536) of the respective optical transceiver sub-modules, each optical fiber connector including a release sleeve (the ferrule) that is slidably engaged with the optical fiber connector, the release sleeve comprising a body defining first and second ends and a curved inner cam surface (it is noted that the inner surface of the ferrule is a curved inner cam surface which the optical fiber abuts).

Regarding claim 34; one of ordinary skill in the art would have found it obvious to use any well known, commonly used material to form the release sleeve, including a thermoplastic material, which is well known in the art, in order to form the device from a material that is easily processed by known and established methods in the art.

Claims 6 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over the proposed combination of Yunker et al. (US 6,854,894 B1) and Chiu et al. (US 7.118.281 B2) and in view of Ahrens (US 6,533,470 B2).

Regarding claims 6 and 21; the proposed combination teaches all of the limitations of claims 6 and 21, as applied above, except for a connector receptacle on the host board. Yunker et al. teaches an edge connector, as shown in Figure 3. Apart from a receptacle attached to the host board for receiving the connector being extremely well known and commonly practiced in the art, Figure 1 of Ahrens shows a receptacle (40) mounted to a host board (30) for receiving a card-edge connector (58). In fact, such a receptacle would be required in order to communicate signals to and from the host board. Therefore, it would have been obvious at the time of the invention

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to a person of ordinary skill in the art to includes such a receptacle in order to allow signals to be communicated to and from the host board and the transmission modules.

Allowable Subject Matter

Claims 26-28 and 33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art cited on the attached PTO-892 form is the most relevant prior art known, however, the invention of claims 26-28 distinguishes over the prior art of record because none of the references either alone or in combination disclose or render obvious an integrated optical transceiver module as defined in claim 26, wherein a portion of the body further defines a curved inner cam surface in combination with the other limitations of claim 26 and the limitations of base claim 18 and intervening claims 19-25. Claims 27 and 28 depend from claim 26.

Furthermore, the invention of 33 distinguishes over the prior art of record because none of the references either alone or in combination disclose or render obvious an integrated optical transceiver module as defined in claim 33, wherein a curved inner cam surface engages the connector latch of the LC duplex connector to enable the LC duplex connector to disengage from the respective one of the optical transceiver sub-modules in combination with the other limitations of claim 33 and the limitations of the base claim.

Hence, there is no reason or motivation for one of ordinary skill in the art to use the prior art of record to make the invention of claims 26-28.

Response to Arguments

Applicant's arguments filed May 4, 2007 have been fully considered but they are not persuasive.

Applicant states that the Examiner has failed to state precisely what the Examiner believes to constitute the purportedly obvious combination of Yunker and Chiu by simply stating that the combination would be obvious. The Examiner disagrees. The rejection set for in the prior Office action and repeated herein states that Yunker et al. does not disclose a latching mechanism and that Chiu et al. teaches a retention and release mechanism (i.e. a latching mechanism) for SFP fiber optic modules and cage assemblies, while Yunker et al. discloses an SFP assembly. The rejection also states that "given the explicit suggestion of Chiu et al. to use the retention and release mechanism in an SFP assembly and the SFP assembly taught by Yunker et al., one of ordinary skill in the art would have found it obvious to incorporate the retention and release mechanism taught by Chiu et al. in the SFP assembly disclosed by Yunker et al. in order to retain and release the fiber optic modules form the receptacle/cage assembly of Yunker et al." Thus, it is clear that the retention and release mechanism taught by Chiu et al. would have been incorporated into the SFP assembly of Yunker et al. for the purpose of retaining and releasing the fiber optic modules. The motivation being to retain the modules and release the modules as desired.

Applicant goes on to state that the Examiner has not stated whether a separate retention and release mechanism would be obviously added to each transceiver or whether it would be obvious to add a single retention and release mechanism that spans the entire set of transceivers situated side by side, as disclosed in Yunker. It is noted that claim 1 of the present application also does not state whether the latching mechanism is added to each optoelectronic sub-module or to an array of sub-modules. The Examiner feels that either interpretation is reasonable and would have been obvious to one ordinary skill in the art, however, the claims of the present application do not require these limitations.

Applicant states that the rejection is problematic because the purpose of the invention of Yunker is to increase the number of ports linearly mounted on a standard rack-sized printed wire assembly and that this appears to be accomplished by removing the spaces between the transceiver pairs by implementing common walls, while in contrast the implementation of the Chiu retention and release mechanism requires space on each side of the transceiver. One of ordinary skill in the art, when looking at the prior art, would have recognized both the advantages of sharing a common wall between transceiver pairs as taught by Yunker and of providing a releasable latching mechanism to selectively retain the transceiver modules as taught by Yunker, and, given the state of the prior art, would have found it obvious to incorporate the latching mechanism of Chiu into the invention of Yunker by making the necessary and elementary structural changes required to provide appropriate room to accommodate the latching mechanism of Chiu, including providing walls of appropriate width to ensure

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room for the latching mechanisms to operate properly thereby providing a device with improved transceiver capacity using a common wall and releasable latches to provide access to the transceivers, especially since both inventions are directed to SFP modules.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning the merits of this communication should be directed to Examiner Michelle R. Connelly-Cushwa at telephone number (571) 272-2345. The examiner can normally be reached 9:00 AM to 7:00 PM, Monday-Thursday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general or clerical nature should be directed to the Technology Center 2800 receptionist at telephone number (571) 272-1562.

/Michelle R. Connelly-Cushwa/
Primary Patent Examiner
Art Unit 2874